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ABSTRACT

A study examined the role that children, mothers, and fathers played in the construction of explanations in a corpus of mealtime conversations. Data for the study were drawn from conversations collected as part of the Home-School Study of Language and Literacy Development. Subjects, 32 preschool children eligible for the Head Start program and their mealtime conversation partners, had their mealtime conversations tape recorded once per year when the children were three, four, and five years of age. The majority of the children were white males. Conversations were transcribed and analyzed. Results indicated that: (1) mothers were the central players in explanatory talk, doing most of the explaining overall, producing over half of all "give explanation" and "propose explanation" moves; (2) the children produced one-fifth of these moves; (3) in contrast, children and mothers requested equivalent numbers of explanations overall; (4) mothers tended to request more internal states explanations and evidential explanations than their children; (5) children requested more intentional/command, consequential, and causal explanations than mothers did; and (6) there were some differences in conversational structure across types of explanation. (Three tables of data are included; 18 references are attached.) (RS)

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Explanation as Co-constructed Discourse: A Study of Conversations in Low-Income Families of Preschoolers

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RUNNING HEAD: Co-constructed Discourse

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Explanation as Co-constructed Discourse: A Study of
Conversations in Low-Income Families of Preschoolers

The development of narrative has been conceptualized as a co-construction process between parent and child. This framework provides a potentially useful way of looking at the development of other kinds of discourse.

Co-construction of a narrative is generally thought to occur when the adult (usually the mother) supports the telling by asking the preschool-aged child to talk about events in which both participated and by providing the child with the opportunity to display his story-telling ability and his knowledge of the experience (Kemper, 1984; Schieffelin and Eisenberg, 1984). The mother initiates the telling with direct questions, then leads the child through the recount by asking questions that frame the narrative for the child, providing positive feedback for any attempts to talk about the experience. While the term co-construction is generally used to describe a single story-telling situation, development over time is implied. Somehow, in the give and take between parent and child in these situations, by mechanisms yet to be described, the child acquires the structures of narrative, ways of making sense with narrative, and understanding of purposes and audiences of narrative (Bakhtin, 1986; Michaels, 1991). This view underlines the social nature of narrative, the conveying of some important point about an event to someone else, a sharing of meaning between two or more speakers (Labov, 1972; Polanyi, 1985).

Can the notion of co-construction can be applied plausibly and productively to other discourse forms? Does the ability to use and comprehend discourse forms other than narrative have precursors in early childhood conversations with mothers? The working hypothesis of this paper is that explanation is a discourse form that is produced collaboratively between interlocutors, and that this collaboration will allow children to develop an understanding of its structures, contents, purposes, and audiences. The study presented here will demonstrate that explanations are jointly constructed by family members in everyday conversation.

A social-interactionist view of development would emphasize the importance of co-construction of discourse abilities. According to Vygotsky (1978), development proceeds from the interpersonal to the intrapersonal, from the social to the psychological. The questions and answers in jointly-constructed discourse become internalized by the child, so that eventually she can produce narratives or explanations independently. Bakhtin refers to these kinds of everyday conversations as primary genres, which become assimilated and reformulated into secondary genres, more complex, more organized, more culturally conventional genres. In a Bakhtinian scheme, children appropriate the individual utterances within conversations (what kind of questions does Mother usually ask? what does one include in a conventional narrative or explanation?) in formulating the more complex secondary genre of telling (and eventually writing) narratives independently.

Given this understanding of the performance and development of narrative, why would it make sense to conceive of explanatory talk in a similar way? Talk that takes a child beyond the immediate present and assumes little shared knowledge between interlocutors facilitates the child's cognitive (Sigel, 1981; Sigel & McGillicuddy-DeLisi, 1984) and linguistic (Snow, 1989, in press) development. Explanatory talk, which allows the child to make some sort of connection between objects, events, or concepts that may or may not be present in the physical context, fits this description. The connections made explicit by explanatory talk exist not in the physical context, but in the minds of the persons giving and receiving the explanation. The speaker assumes that his audience has not made some logical connection between ideas, objects, or events and sets out to clarify the connection to his audience.

This paper reports on a study of the interaction that takes place within families around explanation, examining the roles that family members played in the construction of explanation

during mealtime. I will discuss a new definition of explanation as a social activity, present a taxonomy of explanations based on content, and report the results of a sociolinguistic analysis of explanatory talk found in a collection of mealtime conversations in the low-income families of preschoolers.

Towards a New Definition of Explanation. Most research on children's explanations heretofore has focussed on explanations of causality, exploring children's use of connectives such as "because" and "so". However, there are several problems with this approach. First, the definition of explanation as causal in nature is too narrow. While causal explanations are a major category, there remain other kinds of explanations that express a variety of logical relationships.

Secondly, examination of connectives implies that the sentence is the unit of analysis. Explanations occur in the give and take between interlocutors, in longer segments of text, often over several turns. A study of explanations must look beyond the within-sentence connectives to across-sentence and across-turn coherence.

Related to the issue of level of analysis is a third problem. Many studies examine the talk of the child, and ignore the talk of others around the child. Explanation, like other types of talk, is a social activity. Children hear explanations, give explanations, and jointly construct explanations with parents, siblings, and friends. These last two issues will be directly addressed in this paper.

These problems point to the need for a new definition of explanation. First, the definition must be flexible enough to include a broader set of logical relations than simply causal relations. Rather than assuming that explanations are all causal, we must assume that explanations are marked by a need for some connection to be made clear to someone. Second, the talk of others (besides the child) must be included in the analysis. Mothers and other persons in the child's world are important contributors in these conversations. Third, a discourse analysis approach must be employed, because explanations often are longer than a single sentence. Finally, explanation must be considered a social activity, and, therefore, seen as co-constructed between individuals. We need to pay attention to how an explanation is triggered, who is serving as a new source of knowledge, and how a person indicates a new understanding.

A pragmatic approach to the study of explanations. Minimally, an explanation occurs when one person makes some connection (between events, actions, ideas, or judgments) clear to another. An explanation, however, is rarely a simple utterance. It is often prefaced by a request for information, interrupted by requests for clarification or expansion, elaborated by additional information from other persons, and closed by an acknowledgement of understanding. A more sociolinguistic approach to the study of the development of explanatory talk would emphasize examination of the immediate physical and social context of the conversation for evidence of the occurrence of an explanation. Such an approach has been utilized by Barbieri (Barbieri, Colavita, and Scheuer, in press; Barbieri and Castro Campos, in preparation).

Barbieri and her colleagues have tested a more pragmatic definition of explanation than previously used by researchers. Believing that "explanations are more easily defined by their contexts than by their content" (Barbieri, Colavita, and Scheuer, in press, p. 3), they studied explanations that arise in more naturalistic settings (two-year-olds at play together). They used cues within the physical and social context to indicate when an explanation was called for and when one was given.

While Barbieri's dependence on context to reveal the presence of an explanation may be intuitively appealing, operationalizing such a definition is not a simple matter. She suggests two sets of conditions necessary for the existence of an explanation in conversation. These include: (1) the preparatory conditions: joint attention to what is to be explained, and the belief on the speaker's part that such an explanation is called for; and (2) essential conditions: the explanation is comprehensible to the hearer, and there must be something to be explained and some new

information about it. These two conditions highlight the interactional nature of explanation, and provide a broader operational definition for explanations in children's conversations. Using these criteria to identify the occurrence of an explanation, Barbieri has avoided the pitfall of limiting explanations to causal relations.

The work of Barbieri points to the potential usefulness of a more sociolinguistic approach in order to examine the collaborative nature of explanations. The goal of the present study is to examine the conversational structure of the segments of explanatory talk, and the contributions that different participants make to explanation. The research questions included:

> What is the sociolinguistic structure of explanations? Who is doing the initiating, explaining, and acknowledging? What role do different family members play in segments of explanatory talk?

Using the above criteria for a definition of explanation, this study set out to describe the contributions of different family members to explanation within mealtime conversations.

Methods

The Corpus

The data for this study were drawn from a corpus of mealtime conversations in low-income families of preschoolers. These conversations were collected as part of the Home-School Study of Language and Literacy Development (Snow, Dickinson, and Tabors, 1989), which is attempting to identify predictors of literacy and school success from the early language environment. Each family included a preschooler who was the target child of the study. Families were recruited through their preschools, and were selected for the study if the child was eligible for a Head Start placement (based on family income), and if the family primarily spoke English.

Children from low-income families were chosen as subjects the larger study for a couple of reasons. First, similar data have been collected on middle-class samples in many other studies, so we have a reasonably clear portrait of middle-class children's language environments and later literacy development. Less is known about the environment of children from low-income families. Second, Snow, Dickinson, and Tabors sought a sample with a wide range of abilities, performances, and outcomes. Because children from low-income families represent a wide variety of homes, support structures, and subcultures, we would expect broad variation in performances on the tasks.

Data collection for the Home-School Study entailed yearly visits to subjects' homes and preschools in order to collect observational data and elicit specific types of talk between child and mother, or child and teacher. Visits took place when the target children were age 3, 4, and 5. At the end of home visits, experimenters left a blank tape and tape recorder with instructions for taping a mealtime conversation. The mealtime was taperecorded without the experimenter present.

After the first home visit (when the children were three years old), 27 of 41 (65.9 percent) participating families returned tapes of mealtime conversations. Another 27 of 39 families remaining in the study (69.2 percent) returned tapes after the second home visit (age four). Twenty-one of 37 families remaining in the study (56.8 percent) returned mealtime tapes after the third home visit (age five). A total of 31 different families returned at least one tape for a total of 75 conversations. Because the purpose of this paper is to describe the conversational structure of explanations, rather than the development of explanations, data will be collapsed across the three home visits.

The target children. The 32 children represented in the mealtime corpus range in age from 3-6 to age 5-10. Eighteen (56.3 percent) of the children were white males, while 6 (18.8 percent)

were white females. Two (6.3 percent) of the subjects were black males, five (15.6 percent) were black females, and one (3.1 percent) was a Hispanic female. Seventy-five percent of those families returning mealtime tapes were white, leaving percent of the children from minority groups. While not balanced for the race and gender, the sample does provide a wide enough range in performance for a descriptive study without specifically generalizing to gender and race.

The families. There was a wide range of family constellations represented in the pool of subjects. Some families included other adults that contributed to mealtime conversations. Fathers were present in 14 of the families' conversations (45.2 percent), and grandparents were part of the constellation in 2 homes (6.5 percent). Three other families (9.7 percent) included some other adult who participated in the conversation. Twelve (38.7 percent) were single-parent families. Of these twelve families, four were families made up of mother and target child only, and the other eight families included other siblings. Overall, siblings were present in 23 families.

The conversations. All mealtime conversations were transcribed into computer files according to Codes for the Human Analysis of Transcripts (CHAT) conventions for analysis by the Child Language Analysis (CLAN) software available through the Child Language Data Exchange System (CHILDES) (MacWhinney and Snow, 1990).

There was a very broad range in lengths of mealtimes. Mealtime conversations ranged in length from 2 to 47 minutes, with a mean of 20 minutes. On average, conversations consisted of 417 utterances, ranging from 17 to 909 utterances. The average speaker turn in mealtimes was 6.2 words per turn across the 75 transcripts, ranging from 2.8 to 11.3 words per turn.

Mothers and target children together accounted for approximately three quarters of the talk in mealtimes on average, with mothers providing an average of 43 percent and the child an average of 32 percent of all utterances. Fathers accounted for an average of 14 percent of all talk, indicating that they were not very involved in most family conversations at mealtimes. Other participants, on average, contributed relatively little input in these conversations.

Coding Transcripts for Segments of Explanatory Talk

For the purposes of this study, a segment of explanatory talk was defined as interactional exchange in which there is an indication by one party that there is something he does not understand, or an assumption on the part of the speaker that she knows something the addressee needs to know. This request or assumption is usually followed by the speaker explicitly expressing the logical relationship between objects, intentions, events, and/or concepts. Nine categories of explanatory talk were identified based on the type of logical relationship (Beals, 1991). Each content category is associated with a particular type of question that the explanation answers. The content categories are (with examples):

1) intentional/command - an intention behind a command or request ("why I am telling you to do something"),

*Mother: I said stop the banging.
*Mother: that isn't to be played with.
*Mother: it's to eat with.

2) intentional/question - an intention behind a question or statement ("why I am asking/telling you something"),

*Mother: I told you you should have stuck with the leftovers.
*Mother: they're tastier today than they were yesterday huh?

3) intentional/action - an intention behind an action ("why I am doing something"),

*Mother: what's the spoon for?
*Zenia: huh?
*Mother: sherbet? pineapples?

4) internal state - an intention or cause of an emotion, desire, or other internal state ("why I want something" or "why I feel something"),

*Mother: are you afraid to dunk?
*Diane: no.
*Mother: why?
*Diane: because I'm a big girl.
*Mother: oh you're a big girl.

5) causal - a cause and its effect ("why something happened"),

*Kevin: sure have a big belly ache.
*Mother: you drank your milk too quick?
*Kevin: no.
*Kevin: I think I ate [/] had too much ...
*Kevin: I think I ate it too fast.
*Mother: you ate your favorite meal too fast?
*Kevin: yeah!

6) definitional/descriptive - a definition or meaning of a word or expression ("what does something mean"), or a description ("what is something like"), or a combination of both,

*Kurt: what's your highness mean?
*Kurt: huh?
*Mother: somebody who's really really important.
*Mother: a queen and a princess or something.
*Kurt: or ...
*Mother: or a king.
*Mother: I think it's a king.

7) procedural - a procedure ("how do you do something"),

*Mother: you add a little water and you shake it up.
*Conrad: is that how you make it Mommy [/] that's how you make it?
*Mother: that's how you get it to go when it's all stuck to the sides.

8) consequential - a reason for consequences meted out to a child ("why these consequences are coming about").

*Mother: I said if you wanted to stay in the kitchen you had to remain quiet.
*Brother: okay okay! (he leaves the room)

9) evidential - evidence for knowing something ("how do you know something"),

*Karin:	Sally had gym today.
*Mother:	Sally had gym?
*Karin:	uhhuh.
*Karin:	(be)cause I saw her coming out of gym.
*Mother:	oh did you?
*Karin:	mmhm.

Segments of conversation containing explanatory talk were marked within the 75 transcripts and coded for content type. Explanatory talk accounted for 15.2 percent of all talk during these mealtimes.

Table 1 displays the frequencies of each content category at each home visit. Note that the table includes the number of ignored requests (in which a speaker asks for an explanation, but receives none), as well as completed explanations.

Insert Table 1 about here

Coding for Conversational Move

In order to answer the research questions, a set of coding categories was generated for analyzing the structure of the mealtime conversations. The purpose of these categories was to indicate the conversational function within the explanation of each utterance, focussing on the speaker's intent. The major categories of moves are:

1) request explanation (RX) - the speaker directly asks for an explanation ("Why are you putting your coat on?").

2) give explanation (GX) - the speaker gives an explanation ("Because I want to go out?").

3) propose explanation (PX) - the speaker proposes an explanation, seeking a confirmation from the addressee, usually in the form of a yes-no question. These occurrences are coded differently than requests for explanations because requesters are also giving a possible explanation, presumably contributing more to the explanation ("Are you hungry because you skipped lunch?").

4) give feedback (GF) - the speaker gives some kind of feedback on a previous utterance(s) to an interlocutor; at the semantic level; includes evaluations of the explanation or information given ("Yeah, that's right"). Subcategories are C (correction or disputation) or A (approval or neutral).

5) command, request, or prohibition (C) - the speaker requests or commands some action by the addressee ("Sit down").

This list of moves represents the top level of the coding scheme. Some of these categories have subordinate levels of coding. The most important moves for this analysis are the request explanation, propose explanation, and give explanation. Subcategories of requests for explanations (RX) and proposed explanations (PX) are:

1) no response (N) - the request or proposal goes unanswered.

2) repetition (R) - the request or proposal is repeated; it is essentially identical in content to a previous request.

The move of give explanations (GX) has the following subcategories:

1) spontaneous (S) - the speaker gives an explanation spontaneously, without a request from another speaker.

2) response to request (RR) - the speaker gives an explanation that has been requested by another interlocutor.

3) response to proposed explanation (RP) - the speaker confirms or denies an explanation proposed by another interlocutor.

4) response to a disputation (RD) - the speaker explains his point of view; generally follows a feedback (correction or disputation (GF:C).

Examples of each category will be presented in the next section.

Reliability. Each utterance in all segments of explanatory talk was coded for move category in 15 transcripts (20 percent) by two coders. The Cohen's kappa statistic for the coding scheme was .750, indicating strong agreement (Landis & Koch, 1977). After reliability of the coding scheme was established, the remaining transcripts were coded and analyzed.

Data analysis. The coded transcripts were analyzed using CLAN programs. Frequencies of each coding category were obtained, for the full sample, for each family overall, and for each individual target child, mother, and father. These frequencies were obtained for all mealtime explanatory talk across categories of content, and within content categories.

Results

A sociolinguistic analysis of conversation focusses on speakers' purposes and highlights the conversational structure of talk. Each speaker in a conversation intends to accomplish something by what they say. In explanatory talk, interlocutors ask questions, clarify connections, disagree about issues, acknowledge their understanding of relationships, and perform many other functions. The present analysis is an exploration of the roles that each participant plays in the segments of explanatory talk identified in the study.

First, a look at the overall proportion of explanatory talk contributed by different family members is in order. As mentioned earlier, talk by mothers and target children accounted for a majority of talk within mealtimes, while fathers (when present) contributed a lower proportion. A similar pattern emerged for the proportion of explanatory talk. Mothers, on average, contribute almost half (47.7 percent) of the explanatory talk at all three mealtimes, while the target children provide over one-fourth (28.4 percent) of the explanatory talk each year. Fathers' contributions are much smaller, accounting for only 13.7 percent of explanatory talk, on average. The ranges in contributions by different family members are very broad: for mothers, from 13 to 92 percent; for children, 0 to 67 percent; and for fathers, 0 to 49 percent.

In the remainder of this section, I will review the contributions of family members to the most frequent categories of conversational move, first by collapsing content categories, then, within each content category.

Frequencies of Moves Across Content Categories

The frequencies of the most common categories of moves in the segments of explanatory talk are presented in Table 2. The table shows the total number of moves in each category, and the number of moves by the mother, target child, and father.

Insert Table 2 about here

It is interesting to note that a large majority of the give explanation moves (GX) were spontaneous ones (GX:S), representing 66.0 percent of all give explanation moves. Almost two-thirds of the explanatory moves were offered without a request (GX:RR), proposal (GX:RP), or dispute (GX:RD). In Example 1, Stan offers an explanation spontaneously.

Example 1 (Stan, age 5)

*Stan:	know why it smells like this?
*Stan:	(be)cause it comes from the garden. (GX:S)
*Mother:	does it? (GF:A)
*Stan:	yep.

The other categories of give explanation moves are responses to another speaker's contribution. Responses to requests for explanation (GX:RR) are relatively frequent in mealtime conversations. Less frequent are responses to proposed explanations (GX:RP). A response to a request for explanation is found in Example 2, and a response to a proposed explanation is found in Example 3 below. Responses to disputations moves (GX:RD) are relatively infrequent, but represent an interesting use of explanations: to make a point or provide evidence for one's point of view in an argument. The segment found in Example 4 contains such a disputation (GF:C) and response to it. ("xxx" represents unintelligible speech. Utterances without codes received some code other than those listed above.)

Example 2 (Zenia, age 3)

*Mother:	I'm only going to open one [/] one can at a time.
*Zenia:	why? (RX)
*Mother:	because it'll end up sitting in the (re)frigerator and you don't want to eat it. (GX:RR)

Example 3 (Mark, age 5)

*Mark:	xxx go back to bed.
*Mother:	she does? (GF:A)
*Mother:	why? is she sick? (PX)
*Mark:	yup. (GX:RP)

Example 4 (Kurt, age 3)

*Uncle:	girls don't get their hair cut!
*Sister:	yeah! (GF:C)
*Uncle:	no. (FR)
*Uncle:	they leave it long. (GX:RD)

Request for explanations (RX), like that in Example 2, were a relatively frequent category. However, almost one-fourth of the request for explanations were ignored (RX:N) (see Example 5). This seems like a rather large proportion of requests to go unanswered.

Example 5 (Joe, age 5)

*Joe: why didn't you take the bus? (RX:N)
*Joe: tell me why did you do it [/] the bus mommy? (RX:R)
*Joe: why didn't you do the bus? (RX:R)

The second and third time Joe asks the question the request is coded as a repeated request (RX:R), rather than coding this as three ignored requests for an explanation.

Proposed explanations (PX), like that found in Example 3, were a relatively infrequent occurrence, a total of 96 times. One-sixth of these went unanswered (PX:N).

Give feedback moves (both approval or neutral - GF:A and correction or disputation - GF:C; see Examples 3 and 4) occur frequently in the segments of explanatory talk, indicating that families give each other a large amount of feedback when explaining things to each other. Commands, prohibitions, or requests (C), like that found in Example 6, usually occur in intentional/command segments, and are a relatively frequent event.

Example 6 (Brad, age 5)

*Mother: you shouldn't do that. (C)
*Mother: you're gonna break the spoon and it could hit you in the eye. (GX:S)

Conversational Moves by Mothers. Mothers accounted for a majority of the moves in many of the categories. Overall, mothers accounted for 53 percent of all give explanation moves. They also provided 51 percent of the proposed explanations, in which they offer an explanation in the form of a yes-no question. These two findings suggest that mothers carry most of the load in explaining things in this group of families. Most of these moves are spontaneous give explanation moves, which are produced without a direct prompt of some sort from an interlocutor.

While mothers produced most of the give explanation and propose explanation moves in the mealtimes, they produced only 38.8 percent of the requests for explanations. They did produce a large number of requests for explanations, but certainly did not dominate this activity in the same way they did the give explanation moves.

The give feedback moves produced by mothers accounted for 41.2 percent of all give feedback moves. Positive or neutral feedback moves (GF:A) outnumbered correction or disputation feedback moves (GF:C) by a ratio of three to one.

Mothers also gave most of the commands in the segments of explanatory talk. In the first mealtime, 69.3 percent of all commands were given by mothers, while in the second and third mealtimes, they produced 86.8 and 72.6 percent of the commands, respectively.

Conversational Moves by Target Children. Target children were, on average, very involved in the talk within explanations. More than 20 percent of all give explanation moves was produced by the target children, while they produced 37.1 percent of all request explanation moves. They requested roughly the same number of explanations as their mothers did (178 by children, 186 by their mothers).

Target children proposed explanations 21 times (22 percent of all PX's). None of the children's proposed explanations go unanswered. The technique of proposing an explanation

allows the child to try out an idea on someone in a somewhat tentative way, seeking confirmation of their ideas.

The use of proposed explanation moves seems to be a source of stylistic variation. If a mother or child proposed one explanation in a mealtime conversation, they were more likely to produce another. This is a category of move with a bimodal distribution; a mother or target child will generally have no proposed explanation, or will have two or more.

Target children provided 35.6 percent of all give feedback moves, not far behind mothers in their production, although they provide a much higher proportion of negative feedback (40.2 percent) than their mothers do (24.7 percent). Command or request moves are infrequent, only 8.3 percent of all command or request moves are produced by target children. Preschool children are generally not in a position to give orders to the rest of their families.

Conversational Moves by Fathers. Fathers' frequencies of conversational moves were generally much below those of the mother and the target child, following the trend noted in amount of explanatory talk by fathers. Fathers were not generally frequent contributors to conversation in general or to explanations in particular.

Other participants. There are other participants in many families; sometimes there are grandparents, an uncle or aunt, siblings, or visiting neighbors. In some families, these other participants played a major role in the segments of explanatory talk. However, for the purposes of this study, analyses were limited to mothers and target children, who do the bulk of the talking overall, and, when present, fathers. Mothers, fathers, and target children together account for at least three quarters of the occurrences of each of the categories of moves listed above. For example, mothers, fathers, and target children produced 84.6 percent of all give explanation moves, and 81.0 percent of all request explanation moves. Other categories of moves follow this pattern of distribution.

Length of Turns and Segments and Structure of Segments

In an examination of segment lengths (in number of utterances per segment) and mean length of turn (MLT) (in number of words per turn) by content category, interesting differences emerged. Table 3 provides a comparison of the mean length of segment and mean length of turn across categories of content.

Insert Table 3 about here

The range in mean segment length is rather wide. The shortest mean segment was 3.29 utterances long (for intentional/command segments) and the longest mean segment was 9.20 utterances (for definitional/descriptive segments). MLT's also have a broad range, from 7.84 (definitional/description) to 14.75 words per turn (consequential). These variations across categories in mean segment length and MLT, taken together, suggest that various content types are different in conversational structure.

A segment may be long because it is more interactive, involving two or more people discussing the topic over a larger number of turns. This would be reflected in longer segments but perhaps shorter MLT's. Or a segment may be long because one person is attempting to explain a relatively complex relationship and, in order to do so, must give a long string of related utterances. This would be reflected by longer MLT's. On the other hand, short segments may have longer MLT's if they are relatively independent performances. From Table 3 we can see that definitional/descriptive segments have the longest segments and the shortest turns. These segments tended to have lots of give and take between interlocutors, yielding short turns and long segments. Conversely, consequential, intentional/command, and intentional/ questions segments have among the highest MLT's and the shortest segments, because these are more

likely to be relatively independent performances by the speaker. In the next section, I will use the results of the explanatory move analysis to highlight the difference in conversational structure within each content category.

Frequencies of Moves within Content Categories

Intentional/action segments. Give explanation moves within intentional/action segments were frequent occurrences, reflecting the high frequency of intentional/action segments. In the intentional/action category, the 66 request explanation moves of this type account for 37.1 of the children's requests for explanations across categories. Children also gave as many explanation moves as they requested, a result that contrasts with cross-category frequencies of moves, in which target children request explanations over twice as often as they gave them. Relationships between intentions and actions appear to be ones that children are particularly curious about. Examples 2 and 5 above display this penchant on the part of children to ask for explanations of behavior.

Children and mothers requested a fairly equivalent number of explanations in this category, but mothers have four times as many give explanation moves as request explanation moves. This finding suggests that it is generally the mother who takes the responsibility to respond to requests for intentional/action explanations.

Intentional/command segments. Intentional/command segments were constructed in a very different manner from intentional/action segments. These were segments that were most often produced spontaneously by mothers in order to persuade a child to comply with a command or request, as in Example 6 above.

Mothers accounted for 88.2 percent of the give explanation moves and 84.1 percent of the command or request moves within the segments of this type. Target children accounted for most of the request explanation moves, but these were very infrequent moves; intentional/command segments generally consisted of mothers giving a command followed spontaneously by an explanation for the command (or vice versa). Occasionally, a child would make a request and give an explanation for the request, but this was a rather infrequent occurrence. This confirms the pattern suggested in Table 3, that intentional/command segments were generally among the shortest, while turns were among the longest.

Intentional/question segments. Segments of intentional explanations of questions or statements are rather infrequent occurrences, and, therefore, conversational moves within this category are relatively infrequent. However, this is one category in which mothers tend to request and propose explanations more frequently than the target children do.

While mothers requested and proposed more explanations, a large proportion of these went unanswered, suggesting that these may be difficult for target children and other interlocutors to respond to. The intentional/question category is another mother-dominated category. Children give and request intentional explanations of questions or statements, as in Example 7, but mothers are more likely to give, request, and propose them, as in Example 8.

Example 7 (Brad, age 4)

*Grandpa:	you all right dear?
*Mother:	yes dad.
*Brad:	so how come you said "are you all right"? (RX)
*Brad:	how come? (RX:R)
*Grandpa:	(be)cause it's suppertime and your ma disappeared. (GX:RR)

Example 8 (Zenia, age 3)

*Mother: I told you you should have stuck with the leftovers.
%par: laughs
*Mother: they're tastier today than they were yesterday, huh? (GX:S)

Example 8 is typical of the structure of intentional/question segments in the mealtime conversations. The mother gives the explanation spontaneously, without request and without intervening turns by other speakers. Intentional/question segments are among the shortest in number of utterances, while having longer average turns. Example 8 is a single turn by the mother, with a rather large number of words and only two utterances. Because most give information moves in this category are spontaneous, we can conclude that this type of explanation is often an independent performance.

Causal segments. Causal segments, the third most frequent category, tended to be child-initiated (by a request for explanation), as in Example 9, in which Kurt requests an explanation.

Example 9 (Kurt, age 3)

*Kurt: Mommy is this [the tape recorder] playing?
*Mother: yes it is.
*Kurt: then why is it not gonna talk? (RX)
*Mother: because it's recording what you're saying. (GX:RR)
*Mother: I'll show you after when you're all done eating.

Target children requested twice as many causal explanations as mothers, while mothers produce twice as many give explanation moves as children. Children in this sample are very curious about cause and effect relationships, asking questions and participating in the giving of causal explanations. In Example 10, Kevin's six-year-old brother requests an explanation and then contributes to it.

Example 10 (Kevin, age 4)

*Brother: I wonder why every time the bubble go up it hits the top # it pops! (RX)
*Mother: (be)cause it hits the air. (GX:RR)
*Mother: that makes it pop. (GX:RR)
*Mother: just like when you blow a bubble? (GX:RR)
*Mother: it falls on the grass the grass makes it pop. (GX:RR)
*Brother: and some of them never come back down (GX:RR) they pop in the air. (GX:RR)
*Mother: yup. (GF:A)
*Kevin: yeah. (GF:A)

The mother has started the explanation and the brother then is able to contribute his own ideas, helping him to make sense of the cause of bubbles popping.

Internal state segments. The internal states category is a category in which target children are much more involved in giving explanations compared to other categories. They give 57 explanation moves compared to the mothers' 89 moves. This is a smaller ratio of mother moves to child moves (1.6 to 1) than the ratio of mother moves to child moves across all content categories (2.4 to 1). Mothers request and propose explanations far more frequently than do the target children in this category of segments. Example 11 is typical of a segment in this category.

Example 11 (Diane, age 5)

*Diane:	I don't want any.
*Mother:	you don't want any of those? (RC)
*Mother:	why? (RX)
*Diane:	I already got some. (GX:RR)
*Mother:	oh. (GF:A)

Mothers seem to be very curious about the thoughts and feelings of other family members. Children take on a bigger role in giving explanations in this category than they do in other categories, because mothers are requesting reasons for their internal states.

Definitional/descriptive segments. Definitional/descriptive segments were the longest segments, on average. The average MLT, on the other hand, was the shortest of the categories. Taken together, these findings indicate that this is one of the most interactive of all the segment types. Turns are short, suggesting that participants contribute to the conversation, then yield the floor quickly (or have it taken from them). This kind of conversation is sustained over many turns, until everyone is clear on the definition or description of the object, term, or person in question. Example 12 is an extended conversation around a definition and description of thunder. Several persons take part describing and defining thunder in a light-hearted manner.

Example 12 (Brad, age 3)

*Grandma:	you know what the thunder is? (RX)
*Brad:	yeah. (GX:RR)
*Brad:	thunder and lightning. (GX:RR)
*Grandma:	yeah. (GF:A)
*Grandma:	and the thunder is when uh the angels are upstairs bowling. (GX:RR)
*Grandma:	and that's one of them just got a spare. (GX:RR)
*Mother:	Brad should get out his Berenstain Bear almanac [/] oh I'm gon (t)a have to let Ma read it and that'll tell her what thunder is huh? (laughs)
*Grandma:	mmhm. (GF:A)
*Mother:	tells all about thunder and...
*Grandpa:	that's the energy. (GX:RR)

This is a rather long segment with 10 turns with an overall MLT of 6.6, well below the cross-category MLT of 8.80. This conversation typifies definitional/descriptive segments and demonstrates the interactive nature of these segments.

Mothers do most of the proposing and giving of explanations in definitional/descriptive explanations. However, target children request roughly the same number of explanations that mothers request.

Evidential segments. The most striking frequency in this category of segments is the number of responses to a disputation (give explanation) moves that occur; this category has the largest number of GX:RD moves, despite the fact that it is one of the least frequent types of segments. These explanations are given in order to support a view in an argument 18 times in 62 evidential segments (see Example 4 above). Family members, especially mothers, use this move to provide evidence for their side of an argument.

Procedural segments. Procedural segments tend to have longer turns, and tend to contain more utterances than the average segment across categories. It apparently takes more words

and more turns to explain how to do something. Example 13 contains a sample that illustrates this trend.

Example 13 (David, age 3)

*David: I know how to make homemade [/] homemade applesauce dad.
*Father: good. (GF:A)
*David: you [/] you make the apples and you make the sauce and you... (GX:S) (GX:S) (GX:S)
*Father: what do you mean you make the apples and you make the sauce? (RX:N)
*David: and then you [/] and then you pour some xxx homemade applesauce. (GX:S)

Consequential segments. Consequential segments were quite short in number of utterances, but had very long MLT's on average. Like intentional/command segments, these segments were quite often independent performances, making turns longer, like those in Examples 14 and 15.

Example 14 (Mark, age 5)

*Mother: you ate all your lunch like a big boy. (GX:S)
*Mother: so I might give you a cookie okay?

Example 15 (Remo, age 4)

*Remo: they always cheat so we [/] so we had [/] we [/] we can't have football any day! (GX:S)
*Remo: not even baseball any day!
*Remo: everybody cheats but not my team. (GX:S)
*Remo: so only our [/] us can play. (GX:S)

Both explanations are given independently, without any additional information given by other speakers. All family members performed this type of explanation. Most of the give explanation moves were spontaneous. Others were given in response to a request for an explanation, but once the question was asked, the giving of the explanation was independent; these segments were not very interactive.

Summary

This study has examined the role that target children, mothers, and fathers played in the construction of explanations in a corpus of mealtime conversations. Mothers were the central players in explanatory talk, doing most of the explaining overall, producing over half of all give explanation and propose explanation moves, while the target children produced one-fifth of these moves. In contrast, target children and mothers requested equivalent numbers of explanations overall.

Mothers and children seemed to have preferences in the types of explanations that they requested. Mothers tended to request more internal states explanations and evidential explanations than their children, wanting to know why someone felt or thought the way he did, or what evidence supported some contention. Target children, on the other hand, requested more intentional/command, consequential, and causal explanations than mothers did, requiring

explanations of parental commands and consequences, and attempting to make connections between cause and effect.

There were some differences in conversational structure across types of explanations. Definitional/descriptive segments were longer conversations with short turns, reflecting more interaction around the topic of the explanation. Procedural explanations tended to be longer segments with long turns, reflecting the need to say more in getting such an explanation across to the listener. Consequential, intentional/command, and intentional/question segments were short in number of turns, but long in length of turns, reflecting the relatively independent nature of these explanations. In all three types of explanations, mothers were generally seeking to modify the child's behavior, either through persuasion or through explaining consequences of behavior, and often give their explanation spontaneously, without input from others.

Not all segments of explanatory talk in these mealtime conversations were constructed in the same manner in this study. Some took place across several turns by two or more speakers. Others were performed by a single person. Preschool children participated in many of these segments, as explainers, as requesters of explanations, as feedback givers. Family members gave and proposed explanations to each other, with an apparent emphasis on understanding some connection.

Discussion

Explanations are constructed in conversations between people, one who holds some understanding of some logical relationship, and another (or others) who apparently indicate the need for a clarification of that relationship. The speaker assumes that her audience has not made some logical connection between ideas, objects, or events and sets out to clarify the connection to her audience. This assumption is based on the explainer's relationship to the audience and on the audience's indication in some way that he did not possess the understanding of the logical connection. The explanation does not occur without the knowledge that someone else needs to hear it, or without the attempt on the part of the explainer to make the connection understandable to the addressee. Explanation is clearly a social activity, a type of discourse constructed between persons.

While the notion of co-construction does apply to explanatory talk, this application is not realized in the same manner as it is for narrative talk. First of all, a mother's purpose in eliciting a co-constructed narrative from her child is different from her purpose in eliciting an explanation from the same child. While mothers tend to elicit narratives about events in which both mother and child participated, explanations elicited by mothers are generally sincere attempts to find something out that only the child can make clear to them. Instead of attempting to provide an opportunity for the child to display his knowledge and conversational prowess for a third party, mothers are actually trying to learn something from the child that he can explain. It appears that the overriding emphasis of explanation in family mealtime conversations is to communicate some connection between objects, events, and/or concepts, not to show off one's abilities to do so. (Of course, children and other family members elicit explanations and narratives from each other. I am only speaking here of the mother's purposes for these two activities.)

Another difference in the application of the co-construction hypothesis to narrative versus explanation is found in the elicitation and questioning strategies that an adult might use with a child. Narrative elicitation is centered around a very specific set of relationships (temporal relationships between events), while explanation includes a broad range of types of relationships (intention-behavior, cause-effect, object-description, concept-definition, etc.) The kinds of questions adults can ask to lead a child through a narrative are very different from those needed to understand some other relationship. The questioning procedures vary with the kind of logical relationship at issue. A greater understanding of the types of questions that interlocutors

ask within explanations may provide important clues for understanding how children acquire the structure of different explanatory types.

Conceptualizing discourse talk as jointly constructed between children and adults broadens our understanding of how discourse ability develops. In focussing on the interactive nature of discourse we can begin to see ways that adults provide hints, consciously or unconsciously, of what structural elements are important to include in a particular genre, of the purposes for which people use the genre, of how people in that culture think about the content of the discourse, and of how a speaker responds to his audience's previous and yet-to-be spoken utterances.

This line of inquiry is only in its beginning stages. While I have made an argument that co-construction between parents and children may be one mechanism for development of the ability to explain, in this paper I have only made the first step in showing that explanation is jointly constructed among family members. What remains is to identify what features of these conversations are appropriated by children and what processes by which they accomplish this. Because the category of explanation subsumes such a broad array of purposes, contents, and structures, it affords a fertile area in which to study the development of discourse ability.

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Table 1
Frequencies of Segments of Explanatory Talk by Type (in Descending Frequency)

Content Type	Ignored Requests	Completed Explanations	Total (Proportion)
Intentional/Action	55	244	299 (26.1%)
Intentional/Command	19	249	268 (23.4%)
Causal	19	177	200 (17.5%)
Internal States	19	133	152 (13.3%)
Definitional/Descriptive	6	71	77 (6.7%)
Evidential	6	56	62 (5.4%)
Intentional/Question	3	43	46 (4.0%)
Procedural	3	20	23 (2.0%)
Consequential	0	17	17 (1.5%)
Total	130	1014	1144

Table 2
Frequencies of Conversational Moves in Segments of Explanatory Talk

Move	Overall	by Mother	by Child	by Father
GX:S	1285	728	233	129
GX:RR	458	207	147	42
GX:RD	101	52	10	12
GX:RP	102	44	32	10
Total GX	1946	1031	422	193
RX	369	149	141	17
RX:N	111	37	37	8
Total RX	480	186	178	25
PX	80	39	21	7
PX:N	16	10	0	5
Total PX	96	49	21	12
GF:A	443	205	131	33
GF:C	208	66	88	7
Total GF	651	271	219	40
C	408	307	34	35

Table 3
Mean Length of Segment (MLS) in Utterances and Mean Length of Turn (MLT) in Words

Category	MLS	MLT
Intentional/Action	4.01	8.57
Intentional/Command	3.29	11.83
Intentional/Question	3.39	10.61
Causal	4.72	9.45
Internal State	4.57	9.12
Definitional/Descriptive	9.20	7.84
Evidential	4.53	9.29
Procedural	7.80	10.63
Consequential	4.66	14.75
Overall Mean	4.31	8.80